本試題是否可以使用計算機：□可使用 ， ☑不可使用　（請命題老師勾選）

1. A 16-bit computer means that a computer uses a 16-bit word length. From 16-bit personal computer, you can see 32-bit and 64-bit personal computers now but 24-bit and 48-bit personal computers never happen, why? (10%)

2. For CPU design, what is the main difference between CISC and RISC? If you like to reduce the effort of developing software on it which one you should choose, why? (10%)

3. When you access the Internet(網際網路) you often see the following abbreviations: a)IP, b)TCP, c)DNS, d)DHCP. Please write down their full names(全名). (10%)

4. What is the meaning of synonyms $(Z=f(k)=f(j))$ in Hashing function? And what do j, k, and Z represent? (10%)

5. Your computer can access the Internet by wired or wireless network card. What is the corresponding layer (OSI 7-layer reference model) for the network card? And, the most popular MAC protocols we use are CSMA/CD and CSMA/CA for wired and wireless network cards. Explain their main difference. (10%)

6. A computer process consists of code, data, and stack areas. The memory sizes for code and data areas are known before running the process, Why? However, it is not true for stack area. Lists the situations as many as possible that your process will use the stack area. (10%)

7. For DMA (direct memory access), answer the following questions: a)give a device example from your personal computer, b)what are the two parameters when the DMA operates? (10%)

8. What is PnP (Plug and Play)? What is UPnP (Universal Plug and Play)? (10%)

9. Write a C code to implement a stack that has the size of storing 100 integers, and then write two functions of push and pop with respect to the stack. (20%)